

DECISION DOCUMENT
for
NO FURTHER ACTION AT SITE 01
CED DRUM STORAGE AREA

Naval Construction Battalion Center
Davisville, Rhode Island



Northern Division
Naval Facilities Engineering Command
Contract Number N62472-90-D-1298
Contract Task Order 0127

March 1995



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CED DRUM STORAGE AREA**

**NAVAL CONSTRUCTION BATTALION CENTER
DAVISVILLE, RHODE ISLAND**

**COMPREHENSIVE LONG-TERM
ENVIRONMENTAL ACTION NAVY (CLEAN) CONTRACT**

**Submitted to:
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EXECUTIVE SUMMARY

The Construction Engineering Division Drum Storage Area (CEDDSA) - Site 01, is located in the northeastern portion of the Main Center of the Naval Construction Battalion Center, Davisville (NCBC-Davisville), North Kingstown, Rhode Island (see Figures 1-1 and 1-2). From the 1960s to 1974, the CEDDSA was reportedly used to store liquid wastes contained in 55-gallon drums. The drummed materials reportedly included waste oil and solvents (TRC, 1993). The drums were stored at the southern part of the site in an open, grassy field. No spills or leaks resulting from this practice were reported.

In 1984, Fred C. Hart Associates, Inc. (Hart) conducted an Initial Assessment Study (IAS). Results concluded that the compounds that were stored at the site were readily degradable and, if released to the environment, would quickly degrade to benign compounds. The CEDDSA was, therefore, not included under the Navy's Installation Restoration Program (IRP). In 1993, Study Area Screening Evaluation (SASE) of the CEDDSA was conducted by Halliburton NUS Corporation (HNUS) on behalf of the Navy, to address regulatory concerns over the past reported use of the site. The purpose of the SASE was to determine whether the CEDDSA should be included in the IRP or if a determination of No Further Response Action Planned (NFRAP) could be made.

SASE field studies at the site included: geophysical surveys, soil gas surveys, soil sampling, sand blast grit sampling, groundwater sampling, and catch basin sampling.

The geophysical surveys did not indicate the presence of any buried containers. No contaminants associated with drum storage activities were detected by the soil gas survey.

The analytical results of the SASE sampling events were evaluated in relation to exposure pathways. Potential risk to human health was evaluated by applying methodologies specified in the USEPA document entitled Draft Soil Screening Level Guidance (1993). The USEPA guidance presents Soil Screening Levels (SSLs), which are chemical-specific concentrations or "trigger levels," that may indicate the need to consider additional characterization and study. Potential risks to humans under a residential land use scenario were evaluated to determine conservative risk estimates.

Results of the risk evaluation under a residential scenario indicated that several compounds that exceed their respective SSLs or regulatory limits in soils may represent an elevated risk to residents through daily incidental ingestion of soils. Those compounds include: a number of polycyclic aromatic hydrocarbon compounds (residuals of incomplete burning of fossil fuels), beryllium, and lead.

An evaluation of the potential exposure of humans to airborne dust contamination at the site revealed that chrysene, a polycyclic aromatic hydrocarbon (PAH), slightly exceeds its SSL concentration in only one of 25 soil samples. Lead was detected in one surface soil sample at a concentration of 205 mg/kg (milligrams per kilogram, or approximately 205 parts per million), which exceeds the Rhode Island Department of Health (1992) "lead-free" residential standard of 150 parts per million (ppm) of lead in surface soils.

Only one compound, trichloroethene, was detected in groundwater at a concentration equal to the drinking water quality standard maximum contaminant level (MCL) regulatory limit of 5 ug/l (micrograms per liter, or approximately 5 parts per billion). Groundwater at the site is not currently used, or projected to be used. The possibility of exposure to site contaminants through the groundwater pathway does not, therefore, appear to exist.

Surface water and sediment exposure pathways are not present on the site, and therefore the possibility of exposure to contaminants through this pathway does not exist.

The elevated risks identified in the residential risk screening evaluation were reevaluated under the commercial/industrial planned site reuse scenario. Methods similar to those used to screen residential risks, with conservative input parameters, were used in the commercial/industrial evaluation.

The evaluation identified no elevated risk to human receptors under the planned commercial/industrial reuse scenario.

On the basis of the investigative results, and in accordance with the requirements of the Navy IRP, CERCLA, SARA, Section 300.5 of the National Contingency Plan, and related laws and regulations, it is the Navy's decision that:

No further response actions are planned for the CED Drum Storage Area. This site is considered closed and will not be added to the Installation Restoration Program.

DRAFT

This determination is being made by the Navy with the understanding that the status of No Further Response Action Planned (NFRAP) sites may change as a result of additional or new information.

This document is to serve as the administrative record, supporting the NFRAP decision at the CEDDSA.

1.0 INTRODUCTION

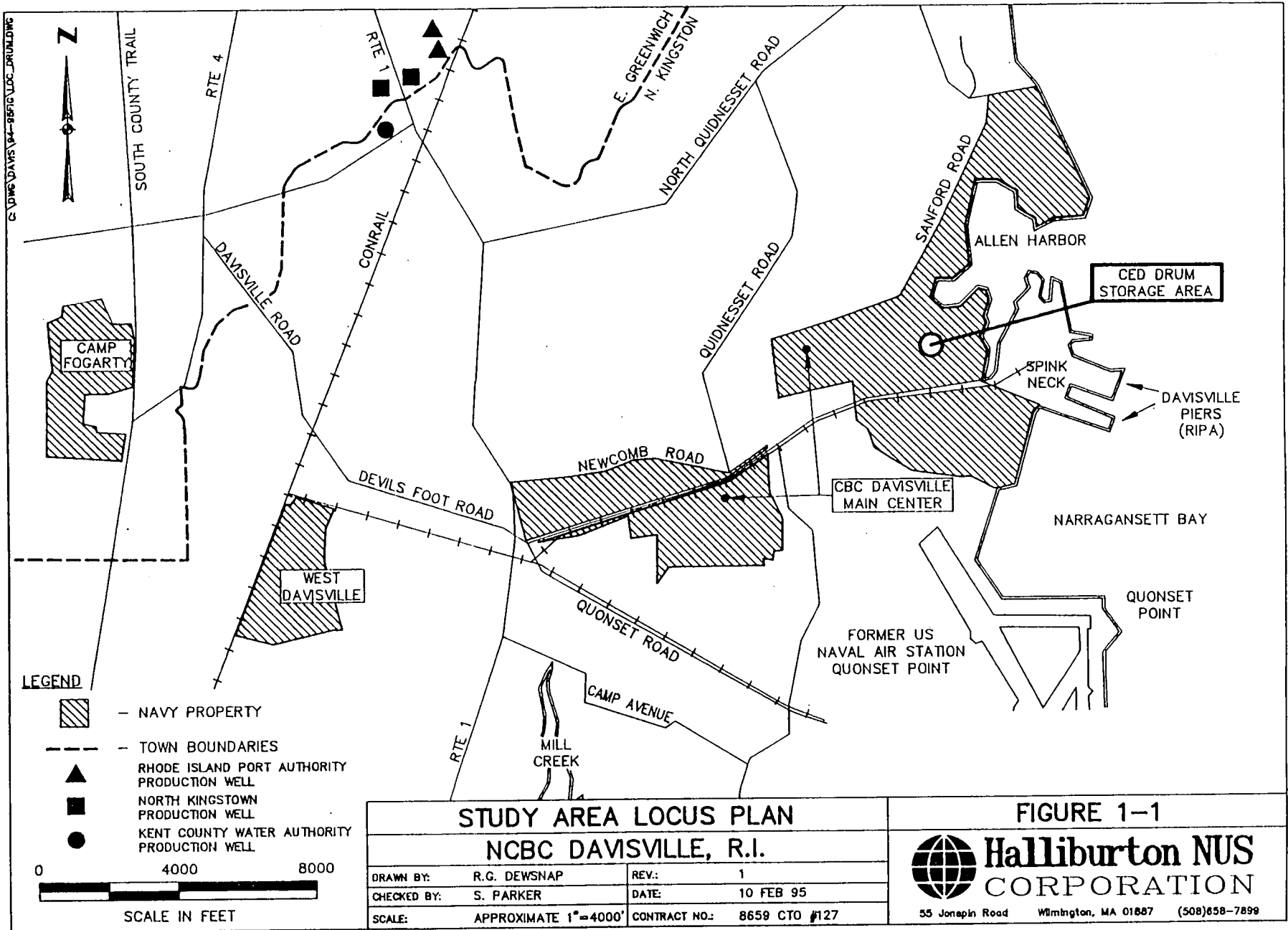
The CED Drum Storage Area (CEDDSA) - Site 01, is located in the northeastern portion of the Main Center of the Naval Construction Battalion Center, Davisville (NCBC-Davisville), North Kingstown, Rhode Island (see Figures 1-1 and 1-2). The CEDDSA was reportedly used to store liquid wastes contained in 55-gallon drums from the 1960s to 1974. The drummed materials were reportedly primary petroleum products and may have included waste oil and solvents (TRC, 1993). The drums were stored in the southern part of an open, grassy field (see Figure 1-3).

Studies were conducted at the CEDDSA to verify the presence or absence of contamination prior to making a determination to include the CEDDSA in the Navy's Installation Restoration Program (IRP). In 1984, Fred C. Hart Associates, Inc. (Hart) completed the Initial Assessment Study at the NCBC-Davisville. The CEDDSA was reviewed during the IAS, and it was concluded by Hart that further environmental studies were unnecessary due to: the low persistency of the expected site contaminants; the slow groundwater flow rates; and the fact that locally, the aquifer is not used as a source of drinking water (Hart, 1984). The CEDDSA was, therefore, not included in the Navy IRP.

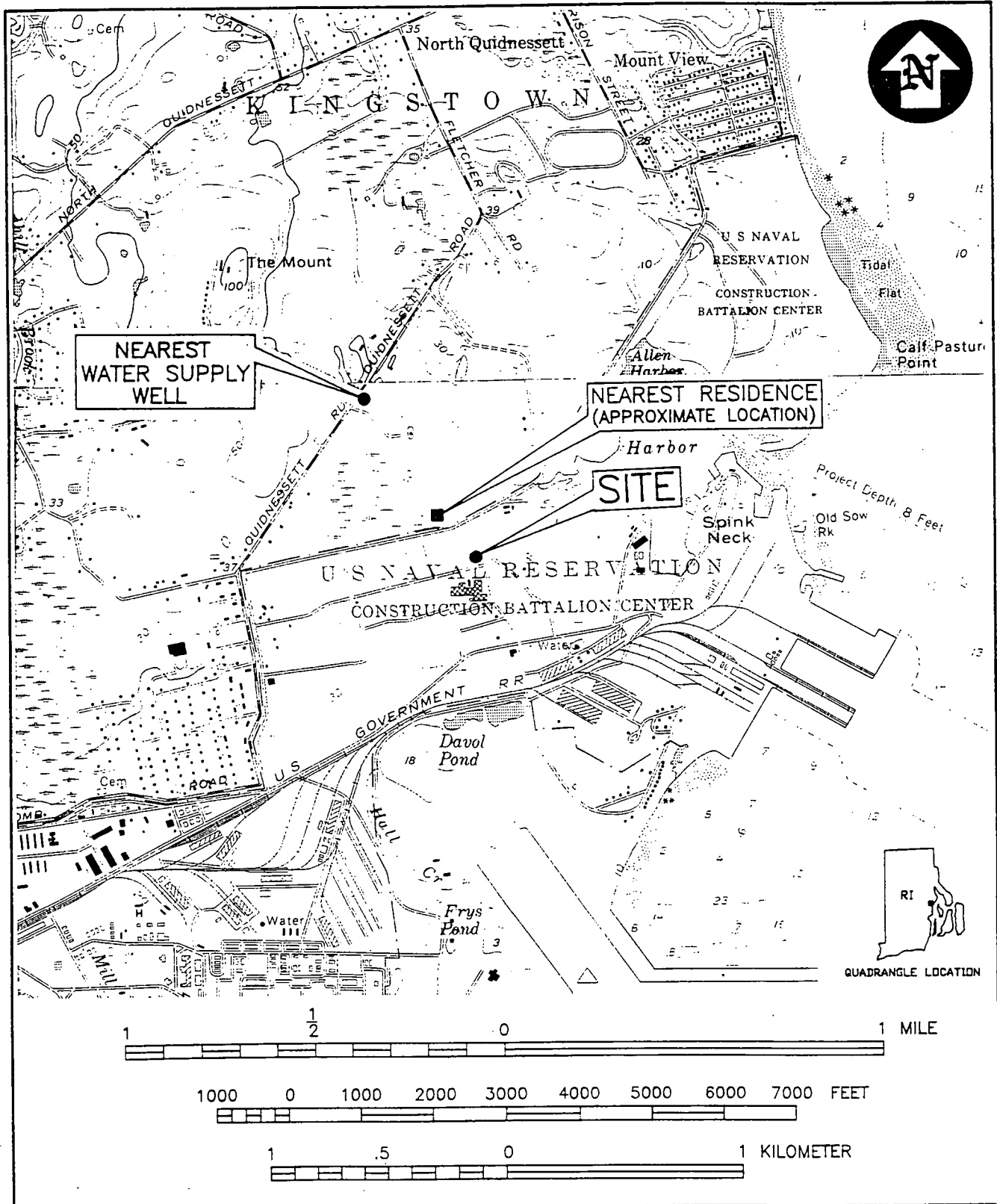
In 1993, a Study Area Screening Evaluation (SASE) of the CEDDSA was conducted by Halliburton NUS Corporation (HNUS) on behalf of the Navy to determine the presence of contamination from past site activities. The purpose of the SASE was to determine whether the CEDDSA should be included in the IRP or if a determination of No Further Response Actions Planned (NFRAP) could be made.


SASE field studies at the site included: geophysical surveys, soil gas surveys, surficial soil sampling, subsurface soil sampling, sand blast grit sampling, groundwater sampling, and catch basin sampling to assess the presence or absence of contamination that could pose a threat to human health or the environment. Based on the analyses and investigative findings, no further action is recommended for Site 01, the CED Drum Storage Area.

This decision document summarizes the evidence collected during the SASE conducted at the CED Drum Storage Area that supports an NFRAP finding.

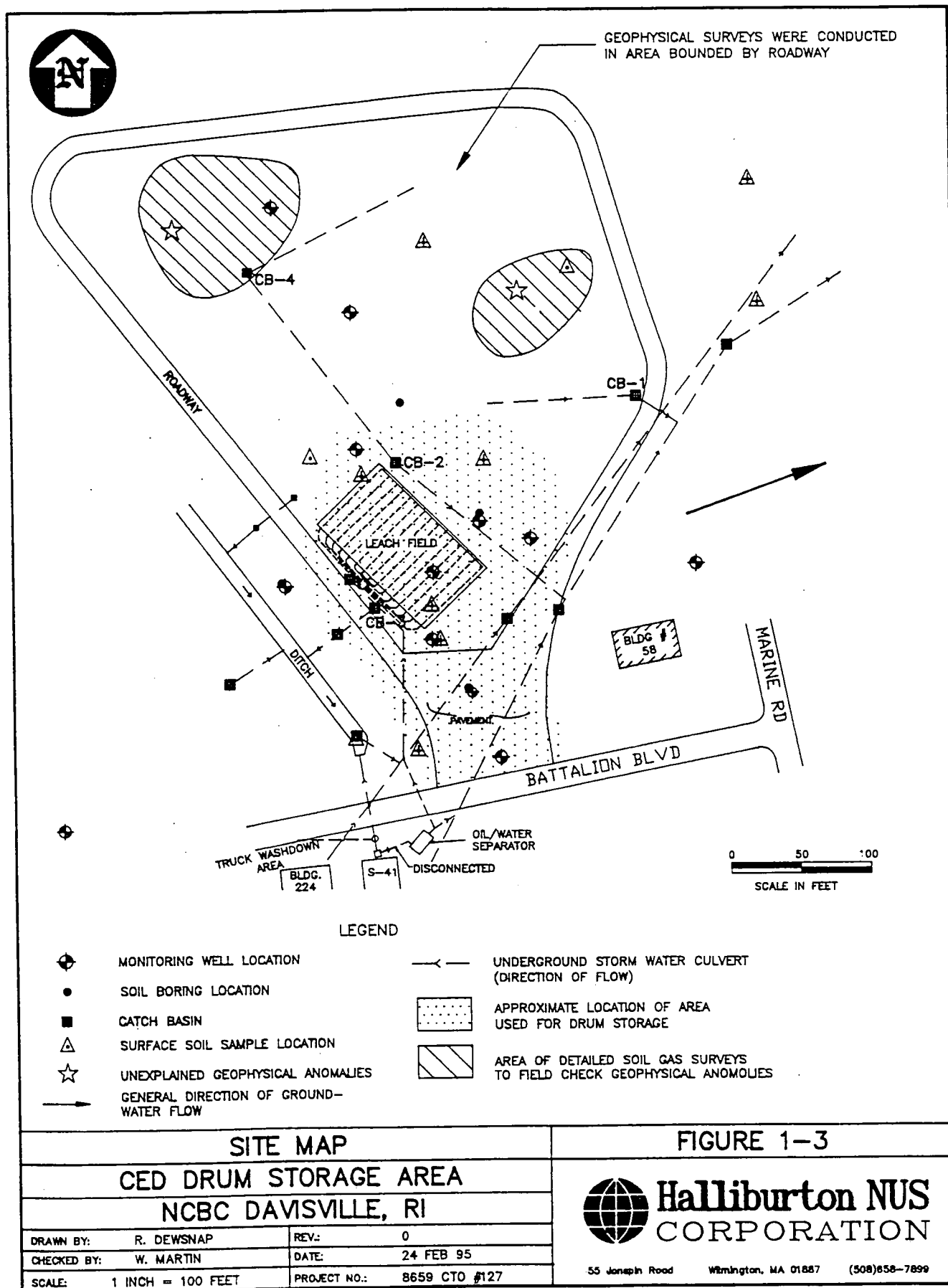


DRAFT



LOCATION MAP			FIGURE 1-2		
CED DRUM STORAGE AREA			 Halliburton NUS CORPORATION		
NCBC DAVISVILLE, RI					
DRAWN BY:	R. DEWSNAP	REV.:			0
CHECKED BY:	W. MARTIN	DATE:			10 FEB 95
SCALE:	AS SHOWN	PROJECT NO:	8659 CTO #127		
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1.1 SITE DESCRIPTION

NCBC-Davisville, which is composed of three areas (the Main Center, the West Davisville storage area, and Camp Fogarty), is located in the northeastern part of the Town of North Kingstown, Rhode Island, approximately 18 miles south of Providence (see Figure 1-1).

1.2 CED DRUM DISPOSAL AREA

Site 01, the CED Drum Storage Area, is located on the Main Center portion of NCBC-Davisville (see Figure 1-2). Narragansett Bay is located approximately 3,500 feet southeast of the site; Allen Harbor, an arm of Narragansett Bay, is located approximately 3,000 feet east.

The site consists of an open, grassy field that is bounded by a paved roadway. A leaching field was installed on the site to dispose of surface water runoff and storm water from a truck washing area. File information indicates that the leach field was operative only from December 1991 until April 1992 (TRC, 1993).

2.0 SASE INVESTIGATION RESULTS

In this section, the data collected and analyzed during the SASE effort is reviewed and summarized for the CED Drum Storage Area. The reader is referred to the Final Study Area Screening Report for CED Drum Storage Area, September 1994, for a full reporting of the data summarized here.

The following SASE field activities were conducted by HNUS in June 1993 and February 1994: geophysical surveying, soil gas surveying, surficial soil sampling, subsurface soil sampling, sand blast grit sampling, groundwater sampling, and catch basin sampling. The analytical results of the SASE sampling events were evaluated for potential risk to human health and the environment by applying the methodology specified in the USEPA document entitled: Draft Soil Screening Level Guidance (9/93). The USEPA guidance presents Soil Screening Levels (SSLs), which are chemical specific concentrations or "trigger levels" that may indicate the need to consider additional characterization and study. The primary purpose of the SSL evaluation approach is to accelerate the decision-making process regarding the need for further remedial action at potentially contaminated sites.

The use of the SSL approach in evaluating the CED Drum Storage Area allows a qualitative risk evaluation of the current site conditions. To do this, an SSL concentration is developed by first determining a maximum acceptable risk that a human being would be subjected to in a residential land use scenario (families, termed receptors, living in houses built at the site). An evaluation of the residential risk scenario was conducted to be conservative. This approach considers: 1) **who** will be exposed to site compounds (the hypothetical families); 2) **where** the families will come in contact with the compounds at the site; 3) **what** types of compounds with which receptors will come in contact (this was determined by the SASE sampling results); and 4) **how** receptors will come in contact with site compounds (through the exposure routes listed below). Working backward from this acceptable risk level, the maximum concentration that can exist in soil for each site chemical is determined assuming three potential means of human exposure: 1) ingestion; 2) inhalation of volatile chemicals and/or chemicals adhering to dust; and 3) migration of these chemicals from site soils into the groundwater below (and subsequently consumed by drinking the site groundwater).

The approach here included an initial risk evaluation using residential exposure scenarios, as previously explained. Following the decision to limit this site to commercial/industrial uses, the risks to human receptors were reevaluated to reflect the risks posed to humans under the planned

commercial/industrial reuse. Results of this evaluation are presented in the Addendum to the Study Area Screening Report - CED Drum Storage Area, dated September 1994.

In the risk evaluations, site compounds are assumed to migrate from their current location in the soil to the hypothetical human receptors along the migration pathways of air and groundwater. For the air exposure pathway, volatile chemicals are assumed to volatilize (become gas) and seep into houses or to adhere to dust particles and be blown by the wind to the people being exposed. The groundwater migration pathway is assumed to occur as a result of site compounds leaching from the site soils into the groundwater and being drawn into a hypothetical on-site drinking water well and subsequently consumed by drinking.

The use of the SSL results in a conservative approach to determining acceptable concentrations of site compounds that can remain in the site soils. The presence of a compound above its respective SSL does not automatically designate a site as "dirty" or trigger the need for a response action. It does, however, serve as an indicator that such action may be considered.

2.1 RESULTS OF RESIDENTIAL RISK EVALUATION

2.1.1 Soil Exposure Pathway

The evaluation of the soil exposure pathway assumes a residential reuse scenario for the site. This pathway addresses a scenario that assumes long-term daily exposure through ingestion of soil (U.S. EPA, 1993).

Surface soil samples were collected from a total of 25 locations. Refer to Figure 1-3 for sample locations.

Six PAH compounds associated with incomplete burning of fossil fuels were detected throughout the site at concentrations that exceeded their soil SSL. Further evaluation of the extent of these compounds should be conducted if future site use includes the development of residential areas.

Two metals, lead and beryllium, were detected in the surface soil samples at concentrations that exceeded their soil pathway SSL or regulatory standard. Lead was detected at a maximum concentration of 205 mg/k, exceeding 150 parts per million (ppm), the State of Rhode Island

Department of Health "Lead Free" standard for soils in residential settings. Beryllium was detected at a maximum concentration of 0.83 milligrams per kilogram (mg/kg), exceeding its SSL of 0.015. Further evaluation of the extent of these metals in soil should be conducted if future site use includes the development of residential areas.

2.1.2 Air Exposure Pathway

The evaluation of the air exposure pathway assumes a residential reuse for the site. This pathway addresses a scenario that assumes long-term daily inhalation of compounds present in soil.

Only one compound, chrysene, was detected at a concentration greater than its air pathway SSL. Chrysene exceeded its SSL in only one of the 25 samples analyzed for this compound.

Lead was detected at a concentration of 205 mg/kg in one of the 25 surface soil samples collected. The concentration did not exceed the SSL; however, the sample does exceed 150 ppm, the Rhode Island Department of Health "Lead-Free" standard for soils in residential settings. The Rhode Island standard is designed to be protective of children in a residential setting. Further evaluation of the extent of lead in soil should be conducted if future site use includes the development of residential areas.

2.1.3 Surface Water/Sediment Exposure Pathway

No surface water or associated sediment deposits exist on this site. Therefore, the potential of exposure to contaminants through the surface water/sediment exposure pathways apparently does not exist at this site.

2.1.4 Groundwater Exposure Pathway

Groundwater samples were collected as part of the SASE. In unfiltered groundwater samples, analysis of trichloroethene was below its corresponding maximum contaminant level (MCL) concentration (which represents the USEPA standard for a drinking water source). Trichloroethene was detected at a maximum concentration of 5 ug/l, which is equal to its regulatory standard (which assumes the use of groundwater for drinking purposes). Several metals including manganese and iron also exceeded regulatory standards or guidelines. However, site groundwater is not presently used, or is use included

in future plans. Therefore, the possibility of exposure to site chemicals through the groundwater pathway does not appear to exist.

2.2 RESULTS OF COMMERCIAL/RESIDENTIAL RISK EVALUATION

Human exposure to compounds detected in site soils and groundwater was evaluated using commercial/industrial exposure parameters to evaluate risks to workers.

No unacceptable risks were identified under this scenario.

2.3 INVESTIGATION OF BURIED DRUMS

Magnetic and electromagnetic surveys were conducted over the site to detect the presence of buried drums that may have been improperly disposed of at the site. Anomalies were located by the surveys and were visually field checked to identify anomaly sources, such as scrap iron, which was present throughout the site. Following extensive visual field investigation, two anomalies remained unexplained. These anomalies were field checked by detailed soil gas surveying and subsurface soil sampling designed to detect petroleum components resulting from leakage from buried drums. No compounds associated with drum storage activities were detected in soil samples or in soil gas samples.

3.0 FINDINGS AND DECISIONS

In 1993, a Study Area Screening Evaluation of the CED Drum Storage Area was conducted by Halliburton NUS Corporation on behalf of the Navy to determine the presence of contamination from past site activities. The purpose of the SASE was to determine whether the CED Drum Storage Area should be included in the IRP or if a determination of No Further Response Actions Planned (NFRAP) could be made.

This Decision Document provides summary descriptions of the site, actions taken, and investigations performed. Based on the findings of the SASE conducted at the CED Drum Storage Area, dated September 1994, the Navy has determined that:

No further response actions are planned for the CED Drum Storage Area. This site is therefore considered closed and will not be added to the Installation Restoration Program.

In making this decision, the Navy's opinion is that it has complied procedurally and substantively with all applicable or relevant and appropriate requirements of the IRP, CERCLA Section 120, the NCP, and associated laws, guidelines, rules, regulations, and criteria.

This determination is being made by the Navy with the understanding that the status of No Further Response Action Planned sites may change as a result of additional or new information.

REFERENCES

Fred C. Hart Associates, Inc. 1984. Initial Assessment Study, Naval Construction Battalion Center, Davisville, Rhode Island. September 1984.

Halliburton NUS Corporation. 1994. Final Study Area Screening Evaluation Report For CED Drum Storage Area. Naval Construction Battalion Center, Davisville, Rhode Island. September 1994.

Rhode Island Department of Health. 1992. "Rules and Regulations for Lead Poisoning Prevention (R 23-24.6-PB)." February 1992.

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TRC Environmental Corporation. 1994 Remedial Investigation Report. Naval Construction Battalion Center, Davisville, Rhode Island. July 1994.

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